

In the Claims

1-52 (canceled).

53. (currently amended). An isolated polynucleotide encoding a polypeptide selected from the group consisting of:

- a) a polypeptide comprising the sequence of SEQ ID NO: 3; or
- b) a polypeptide ~~comprising~~ consisting of a fragment ~~of~~ of SEQ ID NO: 3 comprising at least 10 consecutive amino acids of SEQ ID NO: 3; wherein said isolated polynucleotide encodes a polypeptide that fragment has at least one biological activity selected from the group consisting of antimicrobial activity or cytotoxic activity ~~recognition by an antibody specific for the polypeptide of SEQ ID NO: 3, antimicrobial activity~~ ~~and cytotoxic activity~~.

54 (currently amended). The isolated polynucleotide according to claim 53, wherein said polynucleotide encodes a polypeptide consisting of a fragment of SEQ ID NO: 3 comprising at least 15 consecutive amino acids of the polypeptide of SEQ ID NO: 3.

55 (previously presented). The isolated polynucleotide according to claim 53, wherein said polynucleotide encodes a polypeptide comprising the sequence of SEQ ID NO: 3.

56 (currently amended). The isolated polynucleotide according to claim 53, wherein said polynucleotide encodes a polypeptide ~~comprising~~ consisting of a fragment fragment of SEQ ID NO: 3 ~~of~~ comprising at least 10 consecutive amino acids of the polypeptide of SEQ ID NO: 3.

57 (previously presented). The isolated polynucleotide according to claim 53, wherein said polynucleotide comprises the sequence of SEQ ID NO:2 or a fragment thereof.

58 (currently amended). An isolated polynucleotide encoding a polypeptide comprising:

- a) a signal peptide ~~comprising~~ consisting of the sequence of SEQ ID NO: 4;
- b) a proregion ~~comprising~~ consisting of the sequence of SEQ ID NO: 5;
- c) a mature peptide ~~comprising~~ consisting of the sequence SEQ ID NO: 6; or
- d) a polypeptide ~~comprising an amino acid~~ consisting of the sequence of SEQ ID NO: 3 at least 90% identical over the full length to the amino acid sequence of SEQ ID NO: 4, SEQ ID NO: 5, or SEQ ID NO: 6; or
  - e) a fragment comprising at least 10 consecutive amino acids of SEQ ID NO: 4, SEQ ID NO: 6, or SEQ ID NO: 6;
  - wherein said signal peptide has a function selected from the group consisting of: causes intra- or extracellular secretion of a polypeptide; is recognized by an antibody specific for the polypeptide of SEQ ID NO: 3 or SEQ ID NO: 4; and combinations thereof;
  - wherein said proregion has a function selected from the group consisting of: inactivates the precursor form of the defensin molecule; provides a support for the acquisition of the active conformation of the mature peptide; is recognized by an antibody specific for the polypeptide of NO: 3 or SEQ ID NO: 5; and combinations thereof;
  - wherein said mature peptide has at least one biological activity selected from the group consisting of recognition by an antibody specific for the polypeptide of NO: 3 or SEQ ID NO: 6; antimicrobial activity, and cytotoxic activity;
  - wherein said fragment of SEQ ID NO: 4 has a function selected from the group consisting of: causes intra- or extracellular secretion of a polypeptide; is recognized by an antibody specific for the polypeptide of SEQ ID NO: 3 or SEQ ID NO: 4; and combinations thereof;
  - wherein said fragment of SEQ ID NO: 5 has a function selected from the group consisting of: inactivates the precursor form of the defensin molecule; provides a support for the acquisition of the active conformation of the mature peptide; is recognized by an antibody specific for the polypeptide of SEQ ID NO: 3 or SEQ ID NO: 5; and combinations thereof; and
  - wherein said fragment of SEQ ID NO: 6 has at least one biological activity selected from the group consisting of recognition by an antibody specific for the polypeptide of SEQ ID NO: 3 or SEQ ID NO: 6; antimicrobial activity, and cytotoxic activity.

59 (currently amended). The isolated polynucleotide according to claim 58, wherein said polynucleotide encodes a polypeptide comprising a signal peptide ~~comprising~~ consisting of the sequence of SEQ ID NO: 4.

60 (currently amended). The isolated polynucleotide according to claim 54, wherein said polynucleotide encodes a polypeptide comprising a proregion ~~comprising~~ consisting of the sequence of SEQ ID NO: 5.

61 (currently amended). The isolated polynucleotide according to claim 54, wherein said polynucleotide encodes a polypeptide comprising a mature peptide ~~comprising~~ consisting of the sequence of SEQ ID NO: 6.

62-69 (canceled).

70 (canceled).

71 (currently amended). An isolated polynucleotide encoding a polypeptide selected from the group consisting of:

- a) a polypeptide comprising the sequence of SEQ ID NO: 6; and
- b) a polypeptide ~~comprising an amino acid sequence at least 90% identical over the full length to the amino acid sequence of SEQ ID NO: 6;~~ and
- c) b) a polypeptide ~~comprising~~ consisting of a fragment ~~comprising~~ at least 10 consecutive amino acids of the sequence of SEQ ID NO: 6; wherein said isolated polynucleotide encodes a polypeptide that fragment has at least one biological activity selected from antimicrobial activity or cytotoxic activity the group consisting of recognition by an antibody specific for the polypeptide of SEQ ID NO: 3 or SEQ ID NO: 6, antimicrobial activity ~~[[,]]~~ and cytotoxic activity.

72 (previously presented). The isolated polynucleotide according to claim 71, wherein said polynucleotide comprises the sequence of SEQ ID NO:2 or a fragment thereof.

73 (previously presented). The isolated polynucleotide according to claim 71, wherein said polynucleotide encodes a polypeptide comprising the sequence of SEQ ID NO: 6.

74 (canceled).

75 (currently amended). The isolated polynucleotide according to claim 71, wherein said polynucleotide encodes a polypeptide ~~comprising~~ consisting of a fragment ~~of comprising~~ at least 10 consecutive amino acids of the sequence of SEQ ID NO: 6.

76 (currently amended). The isolated polynucleotide according to claim 71, wherein said polynucleotide encodes a polypeptide ~~comprising~~ consisting of a fragment comprising at least 15 consecutive amino acids of the sequence of SEQ ID NO: 6.

77 (currently amended). A vector comprising a polynucleotide encoding a polypeptide selected from the group consisting of:

- a) a polypeptide comprising the sequence of SEQ ID NO: 3; and
- b) ~~a polypeptide comprising an amino acid sequence at least 80% identical over the full length to the amino acid sequence of SEQ ID NO: 3; and~~
- c) ~~b) a polypeptide ~~comprising~~ consisting of a fragment ~~of comprising~~ at least 10 consecutive amino acids of SEQ ID NO: 3; wherein said polynucleotide encodes a polypeptide that fragment has at least one biological activity selected from antimicrobial activity or cytotoxic activity the group consisting of recognition by an antibody specific for the polypeptide of SEQ ID NO: 3, antimicrobial activity and cytotoxic activity.~~

78 (previously presented). The vector according to claim 77, wherein said polynucleotide comprises the sequence of SEQ ID NO:2 or a fragment thereof.

79 (previously presented). The vector according to claim 77, further comprising elements ensuring the expression of said polynucleotide in a host cell.

80 (currently amended). A vector comprising a polynucleotide encoding a polypeptide comprising:

- a) a signal peptide comprising consisting of the sequence of SEQ ID NO: 4;
- b) a proregion comprising consisting of the sequence of SEQ ID NO: 5;
- c) a mature peptide comprising consisting of the sequence SEQ ID NO: 6; or
- d) a polypeptide comprising consisting of the ~~an amino acid sequence of SEQ ID NO: 3 at least 90% identical over the full length to the amino acid sequence of SEQ ID NO: 4, SEQ ID NO: 5, or SEQ ID NO: 6; or~~
- e) a fragment comprising at least 10 consecutive amino acids of SEQ ID NO: 4, SEQ ID NO: 5, or SEQ ID NO: 6;
- wherein said signal peptide has a function selected from the group consisting of: causes intra- or extracellular secretion of a polypeptide; is recognized by an antibody specific for the polypeptide of SEQ ID NO: 3 or SEQ ID NO: 4; and combinations thereof;
- wherein said proregion has a function selected from the group consisting of: inactivates the precursor form of the defensin molecule; provides a support for the acquisition of the active conformation of the mature peptide; is recognized by an antibody specific for the polypeptide of NO: 3 or SEQ ID NO: 5; and combinations thereof;
- wherein said mature peptide has at least one biological activity selected from the group consisting of: recognition by an antibody specific for the polypeptide of NO: 3 or SEQ ID NO: 6; antimicrobial activity; and cytotoxic activity;
- wherein said fragment of SEQ ID NO: 4 has a function selected from the group consisting of: causes intra- or extracellular secretion of a polypeptide; is recognized by an antibody specific for the polypeptide of SEQ ID NO: 3 or SEQ ID NO: 4; and combinations thereof;
- wherein said fragment of SEQ ID NO: 5 has a function selected from the group consisting of: inactivates the precursor form of the defensin molecule; provides a support for the acquisition of the

active conformation of the mature peptide; is recognized by an antibody specific for the polypeptide of SEQ ID NO: 3 or SEQ ID NO: 5; and combinations thereof; and  
— wherein said fragment of SEQ ID NO: 6 has at least one biological activity selected from the group consisting of recognition by an antibody specific for the polypeptide of SEQ ID NO: 3 or SEQ ID NO: 6, antimicrobial activity, and cytotoxic activity.

81 (previously presented). The vector according to claim 80, wherein said polynucleotide comprises the sequence of SEQ ID NO:2 or a fragment thereof.

82 (previously presented). The vector according to claim 80, further comprising elements ensuring the expression of said polynucleotide in a host cell.

83 (currently amended). A vector comprising a polynucleotide encoding a polypeptide selected from the group consisting of:

- a) a polypeptide comprising the sequence of SEQ ID NO: 6; and
- b) a polypeptide comprising an amino acid sequence at least 80% identical over the full length to the amino acid sequence of SEQ ID NO: 6; and
- c) b) a polypeptide comprising consisting of a fragment of SEQ ID NO: 6 comprising of at least 10 consecutive amino acids of the sequence of SEQ ID NO: 6; wherein said polynucleotide encodes a polypeptide that fragment has at least one biological activity selected from antimicrobial activity or cytotoxic activity the group consisting of recognition by an antibody specific for the polypeptide of SEQ ID NO: 3 or SEQ ID NO: 6, antimicrobial activity and cytotoxic activity.

84 (previously presented). The vector according to claim 83, wherein said polynucleotide comprises the sequence of SEQ ID NO:2 or a fragment thereof.

85 (previously presented). The vector according to claim 83, further comprising elements ensuring the expression of said polynucleotide in a host cell.

86 (currently amended). A host cell transformed with a vector comprising a polynucleotide encoding a polypeptide selected from the group consisting of:

- a) a polypeptide comprising the sequence of SEQ ID NO: 3; and
- b) a polypeptide comprising an amino acid sequence at least 80% identical over the full length to the amino acid sequence of SEQ ID NO: 3; and
- c) b) a polypeptide comprising consisting of a fragment comprising at least 10 consecutive amino acids of SEQ ID NO: 3; wherein said polynucleotide encodes a polypeptide that fragment has at least one biological activity selected from antimicrobial activity or cytotoxic activity the group consisting of ~~recognition by an antibody specific for the polypeptide of SEQ ID NO: 3, antimicrobial activity and cytotoxic activity.~~

87 (previously presented). The host cell according to claim 86, wherein said polynucleotide comprises the sequence of SEQ ID NO:2 or a fragment thereof.

88 (previously presented). The host cell according to claim 86, wherein said vector further comprises elements ensuring the expression of said polynucleotide in said host cell.

89 (currently amended). A host cell transformed with a vector comprising a polynucleotide encoding a polypeptide comprising:

- a) a signal peptide comprising consisting of the sequence of SEQ ID NO: 4;
- b) a proregion comprising consisting of the sequence of SEQ ID NO:5;
- c) a mature peptide comprising consisting of the sequence SEQ ID NO: 6; or
- d) a polypeptide comprising an amino acid consisting of the sequence of SEQ ID NO: 3 at least 90% identical over the full length to the amino acid sequence of SEQ ID NO: 4, SEQ ID NO:5, or SEQ ID NO: 6; or
- e) a fragment comprising at least 10 consecutive amino acids of SEQ ID NO: 4, SEQ ID NO:5, or SEQ ID NO: 6;

- wherein said signal peptide has a function selected from the group consisting of: causes intra- or extracellular secretion of a polypeptide; is recognized by an antibody specific for the polypeptide of SEQ ID NO: 3 or SEQ ID NO: 4; and combinations thereof;
- wherein said proregion has a function selected from the group consisting of: inactivates the precursor form of the defensin molecule; provides a support for the acquisition of the active conformation of the mature peptide; is recognized by an antibody specific for the polypeptide of NO: 3 or SEQ ID NO: 5; and combinations thereof;
- wherein said mature peptide has at least one biological activity selected from the group consisting of: recognition by an antibody specific for the polypeptide of NO: 3 or SEQ ID NO: 6; antimicrobial activity, and cytotoxic activity;
- wherein said fragment of SEQ ID NO: 4 has a function selected from the group consisting of: causes intra- or extracellular secretion of a polypeptide; is recognized by an antibody specific for the polypeptide of SEQ ID NO: 3 or SEQ ID NO: 4; and combinations thereof;
- wherein said fragment of SEQ ID NO: 5 has a function selected from the group consisting of: inactivates the precursor form of the defensin molecule; provides a support for the acquisition of the active conformation of the mature peptide; is recognized by an antibody specific for the polypeptide of SEQ ID NO: 3 or SEQ ID NO: 5; and combinations thereof; and
- wherein said fragment of SEQ ID NO: 6 has at least one biological activity selected from the group consisting of: recognition by an antibody specific for the polypeptide of SEQ ID NO: 3 or SEQ ID NO: 6; antimicrobial activity, and cytotoxic activity.

90 (previously presented). The host cell according to claim 89, wherein said polynucleotide comprises the sequence of SEQ ID NO:2 or a fragment thereof.

91 (previously presented). The host cell according to claim 89, wherein said vector further comprises elements ensuring the expression of said polynucleotide in said host cell.

92 (currently amended). A host cell comprising a vector comprising a polynucleotide encoding a polypeptide selected from the group consisting of:

- a) a polypeptide comprising the sequence of SEQ ID NO: 6; and
- b) a polypeptide comprising an amino acid sequence at least 80% identical over the full length to the amino acid sequence of SEQ ID NO: 6; and
- e) b) a polypeptide comprising consisting of a fragment of SEQ ID NO: 6 comprising at least 10 consecutive amino acids of the sequence of SEQ ID NO: 6; wherein said polynucleotide encodes a polypeptide that fragment has at least one biological activity selected from antimicrobial activity or cytotoxic activity the group consisting of recognition by an antibody specific for the polypeptide of SEQ ID NO: 3 or SEQ ID NO: 6, antimicrobial activity and cytotoxic activity.

93 (previously presented). The host cell according to claim 92, wherein said polynucleotide comprises the sequence of SEQ ID NO:2 or a fragment thereof.

94 (previously presented). The host cell according to claim 92, wherein said vector further comprises elements ensuring the expression of said polynucleotide in said host cell.

95 (currently amended). A method of producing a polypeptide comprising culturing a host cell transformed with a vector comprising a polynucleotide encoding a polypeptide selected from the group consisting of:

- a) a polypeptide comprising the sequence of SEQ ID NO: 3; and
- b) a polypeptide comprising an amino acid sequence at least 80% identical over the full length to the amino acid sequence of SEQ ID NO: 3; and
- e) b) a polypeptide comprising consisting of a fragment of at least of SEQ ID NO: 6 comprising at least 10 consecutive amino acids of SEQ ID NO: 3; wherein said polynucleotide encodes a polypeptide that fragment has at least one biological activity selected from antimicrobial activity or cytotoxic activity the group consisting of recognition by an antibody specific for the polypeptide of SEQ ID NO: 3, antimicrobial activity and cytotoxic activity.

96 (previously presented). The method according to claim 95, wherein said polynucleotide comprises the sequence of SEQ ID NO:2 or a fragment thereof.

97 (previously presented). The method according to claim 95, wherein said vector further comprises elements ensuring the expression of said polynucleotide in said host cell.

98 (currently amended). A method of producing a polypeptide comprising culturing a host cell transformed with a vector comprising a polynucleotide encoding a polypeptide comprising:

- a) a signal peptide ~~comprising consisting of~~ the sequence of SEQ ID NO: 4;
- b) a proregion comprising the sequence of SEQ ID NO:5;
- c) a mature peptide comprising the sequence SEQ ID NO: 6; or
- d) a polypeptide ~~comprising an amino acid consisting of the sequence of SEQ ID NO: 3 at least 90% identical over the full length to the amino acid sequence of SEQ ID NO: 4, SEQ ID NO:5, or SEQ ID NO: 6; or~~  
~~e) a fragment comprising at least 10 consecutive amino acids of SEQ ID NO: 4, SEQ ID NO:5, or SEQ ID NO: 6;~~  
~~— wherein said signal peptide has a function selected from the group consisting of: causes intra- or extracellular secretion of a polypeptide; is recognized by an antibody specific for the polypeptide of SEQ ID NO:3 or SEQ ID NO: 4; and combinations thereof;~~  
~~— wherein said proregion has a function selected from the group consisting of: inactivates the precursor form of the defensin molecule; provides a support for the acquisition of the active conformation of the mature peptide; is recognized by an antibody specific for the polypeptide of NO:3 or SEQ ID NO: 5; and combinations thereof;~~  
~~— wherein said mature peptide has at least one biological activity selected from the group consisting of: recognition by an antibody specific for the polypeptide of NO:3 or SEQ ID NO: 6; antimicrobial activity; and cytotoxic activity;~~  
~~— wherein said fragment of SEQ ID NO:4 has a function selected from the group consisting of: causes intra- or extracellular secretion of a polypeptide; is recognized by an antibody specific for the polypeptide of SEQ ID NO:3 or SEQ ID NO: 4; and combinations thereof;~~

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— wherein said fragment of SEQ ID NO:5 has a function selected from the group consisting of: inactivates the precursor form of the defensin molecule; provides a support for the acquisition of the active conformation of the mature peptide; is recognized by an antibody specific for the polypeptide of SEQ ID NO:3 or SEQ ID NO:5; and combinations thereof; and

— wherein said fragment of SEQ ID NO:6 has at least one biological activity selected from the group consisting of recognition by an antibody specific for the polypeptide of SEQ ID NO:3 or SEQ ID NO:6, antimicrobial activity, and cytotoxic activity.

99 (previously presented). The method according to claim 98, wherein said polynucleotide comprises the sequence of SEQ ID NO:2 or a fragment thereof.

100 (previously presented). The method according to claim 98, wherein said vector further comprises elements ensuring the expression of said polynucleotide in said host cell.

101 (currently amended). A method of producing a polypeptide comprising culturing a host cell transformed with a vector comprising a polynucleotide encoding a polypeptide selected from the group consisting of:

- a) a polypeptide comprising the sequence of SEQ ID NO: 6; and
- b) a polypeptide comprising an amino acid sequence at least 80% identical over the full length to the amino acid sequence of SEQ ID NO: 6; and
- c) b) a polypeptide comprising consisting of a fragment of at least of SEQ ID NO: 6 of at least 10 consecutive amino acids of the sequence of SEQ ID NO: 6; wherein said polynucleotide encodes a polypeptide that fragment has at least one biological activity selected from antimicrobial activity or cytotoxic activity the group consisting of recognition by an antibody specific for the polypeptide of SEQ ID NO:3 or SEQ ID NO:6, antimicrobial activity and cytotoxic activity.

102 (previously presented). The method according to claim 101, wherein said polynucleotide comprises the sequence of SEQ ID NO:2 or a fragment thereof.

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103 (previously presented). The method according to claim 101, wherein said vector further comprises elements ensuring the expression of said polynucleotide in said host cell.

104 (new). The isolated polynucleotide according to claim 54, wherein said polynucleotide encodes a polypeptide comprising a mature peptide consisting of the sequence of SEQ ID NO: 3.

105 (new). The isolated polynucleotide according to claim 104, wherein said polynucleotide comprises the sequence of SEQ ID NO:2 or a fragment thereof.